DRAFT ECONOMIC ANALYSIS OF CRITICAL HABITAT DESIGNATION FOR THE SPECTACLED EIDER

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PREFACE

This report was prepared for the U.S. Fish and Wildlife Service (FWS) by Industrial Economics, Incorporated (IEc) to assess the economic impacts that may result from designation of critical habitat for the spectacled eider. Under Section 4(b)(1) of the 1973 Endangered Species Act (ESA), the decision to list a species as endangered or threatened is made solely on the basis of scientific data and analysis. By contrast, Section 4(b)(2) of the ESA states that the decision to designate critical habitat must take into account the potential economic impact of specifying a particular area as critical habitat. As such, this report does not address any economic impacts associated with the listing of the species. The analysis only addresses those incremental economic costs and benefits potentially resulting from the designation of critical habitat.

IEc worked closely with FWS personnel to ensure that both current and future land uses and marine activities were appropriately identified and to assess whether or not the designation of critical habitat would have any net economic effect in the regions containing the proposed critical habitat designations. To better understand the concerns of stakeholders, IEc solicited FWS opinion and information from other Federal and state agencies regarding what activities occur in the proposed critical habitat units, and gathered preliminary information on land uses and marine activities from written public comments. IEc also requested input from FWS officials concerning whether or not any of these projects would likely result in a new or prolonged consultation or the reinitiation of an existing consultation and whether any of these land uses or marine activities could adversely modify critical habitat without simultaneously jeopardizing the spectacled eider. It is important to note here that it would not have been appropriate for IEc to make such policy determinations. Identification of these land management/use and marine activity actions provided IEc with a basis for evaluating the incremental economic impacts above the listing that are due to the critical habitat designation for the spectacled eider.

Due to time constraints in conducting this analysis, we do not provide quantitative estimates of economic impact. Rather, we identify significant categories of economic impact expected to be attributable to critical habitat designation. We then describe these categories qualitatively. We base our analysis, in part, on information provided through contacts with FWS regional and field staff, and information from other sources.

Our final analysis will provide, to the extent possible, more rigorous estimates of expected economic impacts. Thus, we solicit information that can be used to support such assessment, whether associated with the categories of impact highlighted in this report, or other economic effects of the critical habitat designation. Since the focus of this report is an assessment of incremental impacts of proposed critical habitat, we request information on the potential effects of the designation on current and future land uses and marine activities, rather than on effects associated with the listing of the spectacled eider, or of other Federal, state, or local requirements that influence land use and marine activity.

EXECUTIVE SUMMARY

The purpose of this report is to identify and analyze the potential economic impacts that would result from the proposed critical habitat designation for the spectacled eider (*Somateria fischeri*). This report was initially prepared by Industrial Economics, Incorporated (IEc), under contract to the U.S. Fish and Wildlife Service's Division of Economics.

Section 4(b)(2) of the Endangered Species Act (ESA) requires FWS to base critical habitat proposals upon the best scientific and commercial data available, after taking into consideration the economic impact, and any other relevant impact, of specifying any particular area as critical habitat. FWS may exclude areas from critical habitat designation when FWS determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, provided the exclusion will not result in extinction of the species.

Proposed Critical Habitat

FWS is proposing seven critical habitat units for the spectacled eider. Exhibit ES-1 summarizes the geographic distribution and ownership patterns for the designated units. As shown, approximately 38,556,700 acres of marine habitat (Units 2 and 4-7), and 9,127,638 acres of land (Units 1 and 3) are proposed for critical habitat designation. In total, 47,684,338 acres of land and water area are proposed as critical habitat.

The exhibit also shows the acreage associated with Federal, state, Native, and non-Native ownership. As shown, the majority of the proposed area is under Federal ownership. Much of the remaining land is state-owned, with lesser amounts accounted for by private owners (Native and non-Native).

Economic Impacts Considered

This analysis defines the impact of critical habitat designation to include any effect critical habitat designation has above and beyond the impacts associated with the listing of the spectacled eider. Section 9 of the ESA makes it illegal for any person to "take" a listed species, which is defined by the Act to mean harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or the attempt to engage in any such conduct. To evaluate the *increment* of economic impacts attributable to the critical habitat designation for the spectacled eider, above and beyond the ESA listing, the analysis assumes a "without critical habitat" baseline and compares it to a "with critical

Exhibit ES-1

SUMMARY OF LOCATION AND OWNERSHIP FOR PROPOSED CRITICAL HABITAT UNITS FOR THE SPECTACLED EIDER

Acres (Percent within each Unit)			
Location	**Federal**	**State**	**Native**	**Non-Native**	**TOTAL**
Yukon-Kuskokwim Delta	556,244 (48.8%)	0	578,721 (50.7%)	5,681 (0.5%)	1,140,646
Yukon-Kuskokwim Delta (marine)	3,696,108 (88.6%)	474,487 (11.4%)	0	0	4,170,595
North Slope	6,094,231 (76.3%)	1,166,087 (14.6%)	718,770 (9.0%)	7,904 (0.1%)	7,986,992
North Slope (marine)	5,361,135 (83.2%)	1,082,601 (16.8%)	0	0	6,443,736
Norton Sound	3,683,264 (85.2%)	639,730 (14.8%)	0	0	4,322,994
Ledyard Bay	5,046,210 (94.2%)	310,726 (5.8%)	0	0	5,356,936
Wintering Area	18,006,794 (98.6%)	255,645 (1.4%)	0	0	18,262,439
TOTAL	42,443,986 (89%)	3,929,276 (8.2%)	1,297,491 (2.7%)	13,585 (<0.1%)	47,684,338

Source: *Proposed Designation of Critical Habitat for the Spectacled Eider*, February 8, 2000 (65 FR 6114)

habitat" scenario. The difference between the two is a measurement of the net change in economic activity that may result from the designation of critical habitat for the spectacled eider.

The "without critical habitat" baseline represents current and expected economic activity including all existing modifications due to listing prior to critical habitat designation. These include the take restrictions that result from the ESA listing as well as other Federal, state, and local requirements that may affect economic activities in the regions containing the proposed critical habitat units. For example, the U.S. Army Corp of Engineers will still need to consult with FWS on

Section 404 projects that may affect a listed species to ensure the proposed activities do not jeopardize the continued existence of the species, regardless of the critical habitat status of the parcel. While there may be both current and future impacts attributable to the listing of the spectacled eider, such impacts are not the subject of this analysis.

To estimate the incremental effect that critical habitat designation would have on existing and planned activities, IEc used the following approach:

- We first collected information on current and planned land uses and marine activities in proposed critical habitat areas for the spectacled eider;
- We then identified whether a Federal nexus to these activities exists; and
- Finally, we requested FWS opinion on: (1) whether each identified land use and marine activity is now or would be subject to modifications due to the ESA listing alone, for the spectacled eider; and (2) whether additional modifications might be imposed under the critical habitat designation.

Although critical habitat designation is not expected to require any further project modifications beyond those required by the listing of the spectacled eider, government and private landowners may nonetheless incur costs resulting from critical habitat designation above and beyond those attributable to the listing of the spectacled eider as a threatened species. These costs include: (1) the value of time spent in conducting Section 7 consultations beyond those associated with the listing of the spectacled eider, and (2) delays in implementing public and private development activities, which may result in losses to individuals and society that result from these consultations.

There are approximately three different scenarios associated with the designation of critical habitat that could trigger additional consultation costs: (1) some consultations that have already been "completed" may need to be reinitiated to address critical habitat; (2) consultations taking place after critical habitat designation may take longer because critical habitat issues will need to be addressed; and (3) critical habitat designation may result in some new consultations taking place that otherwise would not had critical habitat not been designated. New consultations would most likely occur on designated critical habitat areas that are not occupied by the species.

In addition to the impacts described above, critical habitat designation may create costs for some communities or small businesses operating within the boundaries of the critical habitat area. These costs are associated with additional Section 7 consultations and losses resulting from delays in project implementation. As is the case for other categories of impact, we solicit additional information that can be used for an assessment of the incremental impacts of proposed critical habitat on communities and small businesses.

The designation of critical habitat may result in economic benefits. Resource preservation or enhancement, which is aided by designation of critical habitat, may constitute an increase in values provided directly by the species and indirectly by its habitat. Categories of potential benefits for the spectacled eider include enhanced wildlife viewing,

increased biodiversity and ecosystem health, and intrinsic (passive use) values.

Due to the limited availability of time and economic data to conduct this analysis, we do not provide quantitative estimates of economic impact. Rather, we describe qualitatively the significant categories of economic impact expected to be attributable to critical habitat designation. To the extent possible, the final version of this analysis will include more rigorous estimates of expected economic impacts. As such, we solicit information that can be used to support such an assessment, i.e., data describing the categories of impact highlighted in this report, or other incremental economic effects of the critical habitat designation.

Preliminary Findings

FWS has not yet received comments from some potentially-affected entities on the proposed critical habitat. These comments may provide a basis for characterizing economic impacts. Based on information obtained from FWS, comments received, and other research, several preliminary conclusions emerge for different categories of affected lands and waters:

- **Federal Lands and Waters:** The proposed critical habitat designation encompasses lands and waters managed by several Federal agencies: Department of the Interior, Department of Commerce, Department of Defense, and U.S. Coast Guard. Several of the units are already part of an ongoing habitat protection program (e.g., National Wildlife Refuges), reducing the likelihood that the designation of critical habitat would introduce new requirements. Overall, FWS anticipates no further modifications to land uses or marine activities due to the designation of critical habitat for the spectacled eider that are beyond those already required by the listing of the eider. In addition, because the designated area is occupied by the eider, FWS anticipates no new consultations or substantive reinitiations of consultations as a result of the designation of critical habitat for the spectacled eider.

- **State Lands and Waters:** The proposed critical habitat designation encompasses state lands and waters managed by the Alaska Department of Fish and Game and the Alaska Department of Natural Resources. Activities undertaken by these agencies associated with proposed critical habitat lands and waters (e.g., commercial fisheries management, oversight of resource extraction on state lands) often involve Federal permitting because of wetland impacts or Federal funding. As a result, these activities have a Federal nexus and are subject to the consultation requirements of the ESA with or without critical habitat being designated. Nonetheless, FWS anticipates no further modifications to land uses or marine activities due to the designation of critical habitat beyond those already required by the listing of the eider, nor does the agency anticipate new consultations or substantive reinitiation of consultations as a result of the designation.

- **Municipal and Private Lands:** Municipalities and private landholders within or adjacent

to proposed critical habitat areas may undertake activities that often require Federal permits or that utilize Federal funding (e.g., road building, water system improvements, other public works projects). When these occur, activities have a Federal nexus and are subject to ESA consultation. Nonetheless, FWS anticipates no further modifications to land uses due to the designation of critical habitat beyond those already required by the listing of the eider, nor does the agency anticipate new consultations or substantive reinitiations of consultations as a result of the designation.

- **Social and Community Impacts:** The areas proposed for critical habitat designation include some small businesses (e.g., commercial fishing enterprises), local governments, and state-managed subsistence activities (e.g., hunting and fishing) that could have a Federal nexus and be subject to ESA consultation. Nonetheless, FWS anticipates no further modifications to land uses due to the designation of critical habitat beyond those already required by the listing of the eider, nor does the agency anticipate new consultations or substantive reinitiations of consultations as a result of the critical habitat designation.

The U.S. Department of the Interior's Fish and Wildlife Service (FWS) published a proposed rule to list the spectacled eider as threatened on May 8, 1992, under provisions of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1531 et seq.). Following a review of information and public comments received on the rule, FWS listed the spectacled eider as a threatened species on May 10, 1993 (58 FR 27474).

On March 10, 1999, the Southwest Center for Biological Diversity, the Center for Biological Diversity, and Christians Caring for Creation filed a lawsuit in the Northern District of California against the U.S. Fish and Wildlife Service and the Secretary of the Department of the Interior for failure to designate critical habitat for seven species: the Alameda whipsnake (*Masticophis lateralis euryxanthus*), the Zayante band_winged grasshopper (*Trimerotropis infantilis*), the Morro shoulderband snail (*Helminthoglypta walkeriana*), the Arroyo southwestern toad (*Bufo microscaphus californicus*), the San Bernardino kangaroo rat (*Dipodomys merriami parvus*), the spectacled eider (*Somateria fischeri*), and the Steller's eider (*Polysticta stelleri*). On November 5, 1999, William Alsup, U.S. District Judge, dismissed the plaintiffs' lawsuit pursuant to a settlement agreement entered into by the parties. In response to the terms of that settlement, FWS proposed designation of critical habitat for the spectacled eider on February 8, 2000.

Critical habitat designation can help focus conservation activities for a listed species by identifying areas, both "occupied" and "unoccupied", that contain or could develop essential critical habitat features. The ESA defines critical habitat as areas occupied by the species that contain the physical or biological features that are essential to the conservation of the species and that may require special management considerations or protection. The ESA also defines critical habitat as areas outside the geographical area occupied by the species, when the FWS determines that such areas are essential for the conservation of the species. Unoccupied lands and waters proposed as critical habitat may include areas previously inhabited by the species at some point in the past.

Critical habitat designation contributes to Federal agencies' and the public's awareness of the importance of these areas. In addition to its informational role, the designation of critical habitat may provide protection where significant threats to the species have been identified. This protection derives from ESA Section 7, which requires Federal agencies to ensure that activities they fund,

authorize, or carry out are not "likely to jeopardize" the continued existence of listed species or result in destruction or adverse modification of critical habitat. However, the designation of critical habitat has no effect on actions on private and state and local government lands or in non-Federal waters unless the activity requires a Federal permit or approval or has Federal funding. This Federal connection (or "nexus") to a land use, marine activity, or management action is required to trigger ESA Section 7 review.

CONSULTATION UNDER SECTION 7 OF THE ENDANGERED SPECIES ACT

Section 7(a)(2) of the ESA requires Federal agencies to consult with FWS whenever activities they fund, authorize, or carry out may affect listed species or designated critical habitat. Section 7 consultation with FWS is designed to ensure that any current or future Federal actions do not appreciably diminish the value of the critical habitat for the survival and recovery of the species. Individuals, organizations, states, local and Tribal governments, and other non_Federal entities are only required to consult with FWS if their actions occur on Federal lands or in Federal waters; require a Federal permit, license, or other authorization; or involve Federal funding. Federal actions not affecting the species or its critical habitat, as well as actions on non_Federal lands or in non-Federal waters that are not Federally funded, authorized, or permitted, do not require Section 7 consultation.

Federal agencies are also required to evaluate their actions with respect to any species that is proposed or listed as endangered or threatened and with respect to its proposed or designated critical habitat. Regulations implementing this interagency cooperation provisions of the Act are codified at 50 CFR part 402. Section 7(a)(4) of the Act and regulations at 50 CFR 402.10 require Federal agencies to confer with the FWS on any action that is likely to jeopardize the continued existence of a proposed species or to result in destruction or adverse modification of proposed critical habitat.

For consultations concerning Federal activities, the relevant Federal agency consults with FWS. For consultations where an activity is proposed by a state or local government or a private entity (the "applicant"), the Federal agency with the nexus to the activity (the "Action agency") consults with FWS and the applicant may be a party to the consultation. The consultation process may involve both informal and formal consultation with FWS.

Informal Section 7 consultation is designed to assist the Federal agency and any applicant in identifying and resolving potential conflicts at an early stage in the planning process. Informal consultation consists of informal discussions between FWS and the Action agency concerning an action that may affect a listed species or its designated critical habitat. In preparation for an informal consultation, the Action agency must compile all biological, technical, and legal information necessary to analyze the scope of the activity and discuss strategies to avoid, minimize, or otherwise affect impacts to listed species or critical habitat. During the informal consultation, FWS makes advisory recommendations, if appropriate, on ways to minimize or avoid adverse effects. If agreement can be reached, FWS will concur in writing that the action, as revised, is not likely to adversely affect listed species or critical habitat. Informal consultation may be initiated via a phone call or letter from the Action agency, or a meeting between the Action agency and FWS.

A formal consultation is required if the proposed action is likely to adversely affect listed species or designated critical habitat in ways that cannot be avoided through informal consultation. Formal

consultations determine whether a proposed agency action is likely to jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat. The ESA implementing regulations define likely to jeopardize as any action that would appreciably reduce the likelihood of both the survival and recovery of the species. Adverse modification of critical habitat is defined as any direct or indirect alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of the species. Determination of whether an activity will result in jeopardy to a species or adverse modification of its critical habitat is dependent on a number of variables, including type of project, size, location, and duration, as well as the current status of the species. If FWS finds, in their biological opinion, that a proposed agency action is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify the critical habitat, FWS is obligated to attempt to identify reasonable and prudent alternatives that are designed to avoid such adverse effects and that allow the proposed action to proceed.

Reasonable and prudent alternatives are defined at 50 CFR 402.02 as alternative actions that can be implemented in a manner consistent with the intended purpose of the action, that are consistent with the scope of the Federal agency's legal authority and jurisdiction, that are economically and technologically feasible, and that FWS believes would avoid jeopardizing the species or the destruction or adverse modification of critical habitat. Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing reasonable and prudent alternatives vary accordingly. It is important to note that costs attributable to reasonable and prudent alternatives resulting from the Section 7 consultation process on occupied critical habitat would normally be associated with the listing of a species, because it is unlikely that FWS would conclude that an action would destroy or adversely modify occupied critical habitat without also jeopardizing the continued existence of a listed species.

PURPOSE AND APPROACH OF REPORT

Section 4(b)(2) of the ESA requires FWS to designate critical habitat on the basis of the best scientific and commercial data available, in addition to considering the economic and other relevant impacts of designating a particular area as critical habitat. FWS may exclude areas from critical habitat upon a determination that the benefits of such exclusions outweigh the benefits of specifying such areas as critical habitat.

The purpose of this report is to identify and analyze the potential economic costs and benefits that could result from the proposed critical habitat designation for the spectacled eider. The analysis was conducted by assessing how critical habitat designation for the spectacled eider may affect current and planned land uses and marine activities on, and in, Federal and non-Federal lands and waters. For Federally-managed lands and waters, designation of critical habitat may modify land uses, marine activities, and other actions that threaten to adversely modify habitat. For habitat held or managed by other governments or private entities subject to critical habitat designation, modifications of land uses and marine activities can only be imposed when a "Federal nexus" exists (i.e., the marine activities or land uses of concern involve Federal permits, Federal funding, or other Federal actions). Activities on state and private lands and in state waters that do not involve a Federal nexus are not impacted by a critical habitat designation. However, these non-Federal nexus actions are still subject to the ESA Section 9 prohibitions on take of listed species.

In addition to determining whether a Federal nexus exists, the analysis must distinguish between

economic impacts caused by the ESA listing of the spectacled eider and those additional effects that would be caused by the proposed critical habitat designation. *The analysis only evaluates economic impacts resulting from additional modifications under the proposed critical habitat designation that are above and beyond impacts caused by existing modifications under the ESA listing of the spectacled eider.* If a land use or marine activity would be limited or prohibited by another existing statute, regulation, or policy, the economic impacts associated with those limitations or prohibitions would not be attributable to critical habitat designation.

To evaluate the increment of economic impacts attributable to the designation of critical habitat, above and beyond the ESA listing, the analysis assumes a "without critical habitat" baseline and compares it to a "with critical habitat" scenario, measuring the net change in economic activity. The "without critical habitat" baseline represents current and expected economic activity under all existing modifications prior to the designation of critical habitat. Only those actions that may be affected by modifications and may incur costs due to critical habitat designation, above and beyond existing modifications, are considered in this economic analysis. Moreover, the economic analysis considers actions that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public.

STRUCTURE OF REPORT

The remainder of this report is organized as follows:

- **Section 2: Description of Species and Proposed Critical Habitat Areas** - Provides general information on the species and a brief description of proposed critical habitat areas, and characterizes the socioeconomic context of these areas.

- **Section 3: Framework for Analysis** - Describes the framework and methodology for the economic analysis; highlights sources of information for the report.

- **Section 4: Impacts of Critical Habitat Designation on Land Uses and Marine Activities** - Identifies and assesses potential economic and other relevant impacts from the proposed critical habitat designation.

- **Section 5: Social and Community Impacts** - Identifies potential impacts to small entities and communities located within the proposed critical habitat.

- **Appendix A: Maps of Critical Habitat Units** - Provides maps of the proposed critical habitat units.

DESCRIPTION OF SPECIES AND PROPOSED CRITICAL HABITAT AREAS — SECTION 2

The spectacled eider is a large sea duck, 52-56 centimeters long (20-22 inches). Sea ducks, which are waterfowl that spend at least part of their lives at sea, are a subgroup of the subfamily Anatinae, family Anatidae. The spectacled eider is one of three species in the genus *Somateria* found in the United States.

Spectacled eiders are diving ducks that primarily feed on bottom-dwelling animals (e.g., snails). In the winter and spring, adult males are in breeding plumage with a black chest, white back, and pale green head with a long sloping forehead and black-rimmed white spectacle-like patches around the eyes. During the late summer and fall, males are brown. Females and juveniles are brown year-round with pale brown eye patches.

In the United States, eiders historically nested from the Nushagak Peninsula of southwestern Alaska north to Barrow and east nearly to the Canadian border. Today two breeding populations remain in Alaska. The remainder of the species breeds in Arctic Russia.

CONSTITUENT ELEMENTS OF CRITICAL HABITAT UNITS

The eiders migrate through different habitat areas throughout the year. During the summer, spectacled eiders breed in areas that provide vegetation for food and escape cover from predators. The breeding areas include the North Slope and Yukon-Kuskokwim (Y-K) Delta. Following the breeding season from mid-July to the end of October, the eiders move to Norton Sound and Ledyard Bay where they molt. The eiders then migrate to marine waters between St. Lawrence and St. Matthew Islands to spend the remainder of fall and winter. During the spring, the eiders return to the breeding habitat after the winter ice has thawed. Along the spring and fall migration routes between the wintering habitat and the breeding habitat, the eiders often rest (i.e., "stage") at areas such as Ledyard Bay.

Breeding Habitat

On the Y-K Delta, spectacled eiders breed mostly along the coast from Kigigak Island north to Kokechik Bay, with smaller numbers nesting south of Kigigak Island to Kwigillingok and north of Kokechik Bay to the mouth of Uwik Slough. The coastal fringe of the Y-K Delta is the only subarctic breeding habitat where spectacled eiders are known to breed. Nesting on the Y-K Delta occurs in areas dominated by marshes with numerous small shallow water bodies. Nests are rarely far from water and are usually within a few meters of a pond or lake.

On Alaska's North Slope, nearly all spectacled eiders breed between Icy Cape and the Shaviovik River. Within this region, most spectacled eiders occur between Cape Simpson and the Sagavanirktok River. Spectacled eiders on the North Slope occur at low densities. During pre-nesting and early nesting, they occur most commonly on large shallow lakes with complex shorelines or small islands. Such shallow water bodies with vegetation and low islands seem to be important as eider nesting and brood-rearing habitat on the arctic coastal plain. The vegetation

provides food and escape cover from predators.

Molting Habitat

Within the United States, spectacled eiders molt in Norton Sound and Ledyard Bay. Because molting eiders congregate in large, dense flocks, they are particularly vulnerable to disturbance and contamination. For several weeks during the molting period (late July through October), each bird is flightless. However, there is no time in which all birds are simultaneously flightless.

Norton Sound is located along the western coast of Alaska between the Y-K Delta and the Seward Peninsula. It is the principal molting and staging area for females breeding on the Y-K Delta, probably the most at-risk of the three breeding populations. Some Y-K Delta male spectacled eiders, presumably subadult males, also molt in Norton Sound. As many as 4,030 spectacled eiders have been observed in Norton Sound at one time. Spectacled eiders arrive in eastern Norton Sound at the end of July and depart in mid-October. Although overall benthic biomass (quantity of organisms living on the sea floor) in this area is thought to be lower than in other parts of Norton Sound, the abundance of large gastropods (e.g., snails, which are presumably a spectacled eider food item) is higher in this area than elsewhere.

Ledyard Bay is one of the primary molting grounds for female spectacled eiders breeding on the North Slope, and most female birds molting here are from the North Slope. Satellite data suggest that male spectacled eiders from the North Slope seem to molt and stage in equal numbers in Ledyard Bay and in the two primary molting areas in Russia. Aerial surveys in September 1995 found 33,192 spectacled eiders using Ledyard Bay. Most were concentrated in an area offshore.

Wintering Area

During winter, spectacled eiders congregate in large and dense flocks in openings in the pack ice in the central Bering Sea between St. Lawrence and St. Matthew Islands. Spectacled eiders from all known breeding populations use this wintering area; no other wintering areas are currently known. It has been estimated that the entire wintering population, and perhaps the worldwide population, of spectacled eiders is 374,792 birds. Because nearly all individuals of this species may spend each winter occupying an area of ocean less than 50 kilometers (31 miles) in diameter, the eiders may be particularly vulnerable to chance events at this location during this time.

Population Background

Between the 1970s and 1990s, spectacled eiders on the Y-K Delta declined by 96 percent, from 48,000 pairs to fewer than 2,500 pairs in 1992. Based upon surveys conducted during the past few years, the Y-K Delta breeding population is estimated to be about 4,000 pairs.

The breeding population on the North Slope is currently the largest breeding population of eiders in North America. The most recent population estimate is 9,488 birds. However, because this breeding area is so much larger than that on the Y-K Delta, the density of eiders on the North Slope is markedly lower than on the Y-K Delta.

PROPOSED CRITICAL HABITAT UNITS

Exhibit 2-1 displays all seven units proposed as critical habitat for the spectacled eider; more detailed maps of each unit are provided in Appendix A. FWS considers all proposed critical habitat units to be occupied. Ranging from 1,140,646 acres to 18,262,439 acres per unit, all seven units of critical habitat together comprise 47,684,338 acres. Landowners in these areas include:

Exhibit 2-1
SPECTACLED EIDER CRITICAL HABITAT UNITS

Exhibit 2-1
SPECTACLED EIDER CRITICAL HABITAT UNITS

- U. S. Department of the Interior, including the Bureau of Land Management and the Fish and Wildlife Service;
- Alaska Department of Fish and Game;
- Alaskan Natives; and
- Private non-Native owners.

Exhibit 2-2 shows the acreage associated with Federal, state, Native, and private ownership.

Exhibit 2-2

PROPOSED CRITICAL HABITAT ACREAGE BY MANAGER, HOLDER, OR OWNER

Manager, Holder, or Owner of Proposed Critical Habitat	Total Acres	Percentage of Total
Federal Government	42,443,986	89.0%
State Government	3,929,276	8.2%
Native*	1,297,491	2.7%
Private Entity - non-Native	13,585	<0.1%
TOTAL	47,684,338	100.0%

***** Native lands are in a variety of stages of conveyance: Native patented (i.e., land title has been delivered to Natives), Interim conveyed (i.e., land title in process of being handed over to Natives), and Selected (i.e., land only designated as desired by Natives); therefore, the total number of acres listed may be an overestimate of the amount ultimately conveyed to Native Alaskans.

Source: *Proposed Designation of Critical Habitat for the Spectacled Eider*, February 8, 2000 (65 FR 6114)

Unit 1: Yukon-Kuskokwim Delta (land)

Unit 1 represents breeding habitat for the spectacled eider. The known primary constituent elements of habitat on the Y-K Delta include marsh, meadow, mixed meadow and uplands, and areas next to open water. The proposed area includes approximately 1,140,646 acres and encompasses 75 townships. Approximately 60 percent of the townships included in this proposed critical habitat unit are within the Yukon Delta National Wildlife Refuge boundaries. The remaining 40 percent of the townships are primarily Native-owned land.

Unit 2: Yukon-Kuskokwim Delta (marine)

Unit 2 is composed of the offshore waters used by pre- and post-breeding spectacled eiders. The known primary constituent elements of this habitat include the marine waters within 40 kilometers (25 miles) of the coast, the associated aquatic plants and animals in the water column, and the underlying marine benthic community (organisms living on the sea floor). The area encompasses approximately 4,170,595 acres of marine habitat. Approximately 88.6 percent of the area is Federally-managed, and the remaining 11.4 percent is state-managed.

Unit 3: North Slope (land)

Unit 3 supports the largest breeding population of spectacled eiders in North America; therefore, it is an important breeding habitat for this species. The known primary constituent elements of habitat on the North Slope include deep water bodies; wetlands; all permanently flooded wetlands and water bodies containing either plant species, *Carex aquatilis or Arctophila fulva*, or both; and all habitat immediately next to these habitat types. This area includes approximately 7,986,992 acres and encompasses 402 townships. Approximately 76 percent of the terrestrial portion of the North Slope proposed critical habitat unit is managed by the Bureau of Land Management (BLM) as the National Petroleum Reserve - Alaska (NPR-A). Of the remaining 24 percent of the area, approximately 15 percentage points represent state-owned, and nine percentage points represent Native-owned lands.

Unit 4: North Slope (marine)

Unit 4 contains marine habitat that is an important breeding area for the spectacled eider. The known primary constituent elements of this habitat include the marine waters, the associated marine plants and animals in the water column, and the underlying marine benthic community. This area encompasses approximately 6,443,736 acres of marine habitat. The proposed marine areas are in the Beaufort and Chukchi Seas out to 40 kilometers (25 miles) from the mainland. Approximately 83 percent of the area is Federally-managed, and 17 percent is state-managed.

Unit 5: Norton Sound (marine)

Unit 5 represents the principal, and perhaps only, molting habitat for breeding female spectacled eiders from the Y-K Delta. The area is used by spectacled eiders from mid-July until the end of October. This proposed area in eastern Norton Sound is east of the line connecting Uwik Slough on the northern edge of the Yukon River Delta to Priest Rock on the northern shore of Norton Sound. This proposed critical habitat unit encompasses 4,322,994 acres of marine habitat. The known primary constituent elements of habitat of Norton Sound include the marine waters, associated marine plants and animals in the water column, and the underlying marine benthic community. Since food needs of eiders during molt are high and the amount of food (e.g., snails) is higher in this area than elsewhere in Norton Sound, the FWS believes that this area is of importance to the continued survival of the spectacled eider. Approximately 85 percent of the area is Federally-owned, and 15 percent is state-owned.

Unit 6: Ledyard Bay (marine)

Unit 6 represents one of the primary molting areas for female spectacled eiders breeding on the North Slope, and also serves as a molting and staging area for male eiders. The area is used by spectacled eiders from early July through mid-October. The waters of Ledyard Bay proposed for critical habitat are between Cape Lisburne and Icy Cape. The area of this unit totals approximately 5,356,936 acres of habitat. The known primary constituent elements of habitat of the Ledyard Bay molting area include the marine waters, associated plants and animals in the water column, and the underlying marine benthic community. Approximately 94 percent of the area is Federally-owned, and six percent is state-owned.

Unit 7: Wintering Area (marine)

Unit 7 represents a wintering area for spectacled eiders during late fall, winter, and early spring. It has been suggested that most, if not all, of the worldwide population of spectacled eiders congregates for several months in this small portion of the central Bering Sea. The area encompasses those waters between St. Lawrence and St. Matthew Islands and totals approximately 18,262,439 acres of habitat. The known primary constituent elements of this habitat include the marine waters, associated plants and animals in the water column, and the underlying marine benthic community. Approximately 99 percent of the area is Federally-owned, and one percent of the area is state-owned.

SOCIOECONOMIC PROFILE OF THE CRITICAL HABITAT AREAS

To provide context for the discussion of potential economic impacts associated with designation of critical habitat for the spectacled eider, we summarize below key economic and demographic information for the areas included within the proposed designation.

Proposed land-based critical habitat for the spectacled eider includes portions of the North Slope Borough, Wade Hampton Census Area, and Bethel Census Area. The critical habitat encompasses remote coastal regions within these areas, generally characterized by low population density. Infrastructure within these regions is minimal, with few significant roads for year-round travel and limited port facilities.

In addition, critical habitat for the spectacled eider includes several marine areas that play a role in state and local economies, including Ledyard Bay, Norton Sound, the Bering Sea south of St. Lawrence Island, and areas along the coastline of the North Slope Borough, Wade Hampton Census Area, and Bethel Census Area.

Below we characterize the economic status of the land-based critical habitat areas, as well as the economic contribution of the marine-based areas to the overall state economy and to nearby coastal villages in particular.

Land-Based Critical Habitat Units

Considered in aggregate, the North Slope Borough, Wade Hampton Census Area, and Bethel Census Area comprise less than five percent of the total population of Alaska. The largest of the proposed critical habitat areas, North Slope Borough, contains just over one percent of the state population. Economic activity in the three affected boroughs, as measured by earnings, represents less than 10 percent of the state's earnings. Data from the Alaska Department of Labor indicate that combined earnings for the North Slope, Wade Hampton, and Bethel Boroughs total $701 million annually, accounting for roughly eight percent of total earnings in Alaska. North Slope alone accounts for approximately six percentage points of these earnings, while Bethel accounts for one percentage point and Wade Hampton less than one percentage point.

North Slope Borough (Unit 3)

Oil and gas extraction is the primary industry in the North Slope, comprising 57 percent of total Borough earnings. Since the discovery of the vast North Slope oil fields in the 1960s, oil operations have provided substantial employment to local residents. In 1998, an estimated 50 percent of North Slope residents were employed by the oil and gas industries. Second to the oil and gas industry, local government is the largest employer in the North Slope, providing jobs for 21 percent of residents.

In 1997, per capita personal income in the Borough was $23,725, ranking ninth of 29 census areas surveyed in Alaska. In addition to wage income, revenues from taxes on North Slope oil operations contribute significantly to local income. This tax revenue is distributed to North Slope Borough residents with Inuit ancestry. These revenues are estimated to generate over $40,000 per resident annually. These payments may explain in part the relatively high personal income levels of residents despite 14.7 percent unemployment and the fact that 34.6 percent of eligible adults are not active in the labor force.

Wade Hampton and Bethel Boroughs (Unit 1)

The portions of Wade Hampton and Bethel Boroughs proposed as critical habitat in the Yukon-Kuskokwim Delta form a coastal strip extending from the village of Emmonak in Wade Hampton to just south of the village of Kipnuk in Bethel. While economic activity in most areas of Wade Hampton and Bethel Boroughs is dominated by the service and government sectors, the coastal areas also rely heavily on commercial and subsistence fishing, hunting, and trapping. Several of the villages in this stretch of coast operate as seasonal fishing and fish processing outposts. Principal fisheries in the area include salmon, halibut, herring roe and pollock. In addition to fishing, other key sources of income for residents include the local government and school district, Native craft-making, and whale, walrus, musk-ox, and seal hunting. The area's emphasis on fishing and hunting suggests that, while year-round jobs do exist, many of the employment opportunities are seasonal. As a result, off-season (i.e., non-summer) unemployment is high.

Per-capita income in 1997 for Wade Hampton Census area was $11,169, ranking 27th of 29 Alaskan census areas surveyed. Per-capita income in 1997 for the Bethel Census Area was $15,752, ranking 26th of 29 census areas surveyed. However, census-area wide per-capita income figures for Bethel may overestimate the income levels in smaller villages. This occurs because the relatively greater economic activity in the city of Bethel increases the average for the area as a whole. Research on the median household income of individual towns in the proposed Yukon-Kuskokwim critical habitat unit suggests that the Wade Hampton per-capita estimate may be more reflective of the average income level of non-urban areas of Bethel Census Area. These estimates also suggest the relative importance of subsistence fishing and hunting as a supplement to wages and other earned income.

Marine Habitat

Nearly all coastal Alaskan communities have a commercial fishing industry that works in fisheries in the Bering Sea, Aleutian Islands, or Gulf of Alaska. As a result, commercial fishing represents a sizeable portion of the state's economy. In 1997, Alaskan landings from commercial fisheries totaled 4.8 billion pounds. Landings were worth a total of $1.1 billion and accounted for 4.5 percent of Alaska's total gross state product (GSP) of $24.5 billion. Alaska, with a state population of 621,400, has 23,974 crew licenses and 15,854 boat licenses.

According to the Alaska Department of Labor, the main summer catch in Alaska includes salmon, shrimp, and halibut, while the primary winter catch includes crab and pollock. The Federally managed waters of the Exclusive Economic Zone (EEZ) are home to crab, pollock, and groundfish. For the year 2000, the total allowable catch of pollock (1.1 million pounds) constitutes almost half of the a total allowable catch of 2.3 million pounds for all species in EEZ waters off the coast of Alaska. In 1998, groundfish had an ex-vessel value of $384.9 million. State waters, on the other hand, are home to salmon, pacific herring, and shellfish. Salmon and shellfish are the most valuable catches from these waters. In 1998, the ex-vessel value of shellfish was $218.7 million while the ex-vessel value of salmon was $242.7 million.

It is important to note that it is difficult to determine where these fishing revenues are introduced into the Alaskan economy. While in many cases Alaskan-based commercial fishing boats work fisheries near their home ports, many boats travel significant distances from coastal ports

to fisheries. Some boats have advanced catch storage facilities on board, eliminating the need to travel immediately to the closest landing facility to land catch. Floating processing plants exist at sea which allow fishing boats to sell their catch on the ocean. Fishing boats called motherships have capabilities for both catching and processing fish far from shore. The important implication of these fishery characteristics is that there is no geographical correlation among where boats are docked, where they go to fish, and where they land catch. Therefore, if the designation of critical habitat were to have an economic impact on commercial fisheries, designating critical habitat in the waters of a given fishery might have economic effects in geographical areas far from the critical habitat area.

It also is important to note that, regardless of the contribution to the commercial fishing industry of the proposed marine critical habitat areas discussed below, they all may provide subsistence fishing opportunities for local communities. Subsistence fishing is discussed in more detail in Section 5 of this report.

Below we characterize the contribution of the fishing areas in the proposed critical habitat for the spectacled eider to the overall Alaskan commercial fishing industry.

North Slope (Unit 4)

The proposed critical habitat located in state waters along the coast of the North Slope does not support a significant commercial fishery. For the year 1999, the North Slope Borough had a total of only four people fishing on four permits, which were issued for salmon fishing in Bristol Bay. However, it is likely that additional North Slope residents may work on commercial fishing crews. The presence of Arctic sea ice for the majority of the year prevents large-scale commercial fishing operations. As a result, commercial fishing here does not provide a major source of economic activity for the state or region.

Ledyard Bay (Unit 6)

Ledyard Bay abuts portions of the North Slope Borough, which, as mentioned above, had only four active commercial fishermen in 1999. However, as mentioned above, some residents likely work on commercial fishing crews. As these data imply, the proposed critical habitat designation area for Ledyard Bay does not support a significant commercial fishing industry. As a result, it does not provide a major source of economic activity for the state or region.

Norton Sound (Unit 5)

The waters of the proposed critical habitat in Norton Sound are home to a variety of salmon and herring, found both in Federal waters in the Exclusive Economic Zone (EEZ) and in state waters. In addition, state waters harbor a small shellfish fishery, which produced a catch of less than 100,000 pounds with a value of $100,000 in 1999. Relative to the salmon catch in other costal sections of Alaska, Norton Sound supports little commercial fish harvest. Salmon harvesting in this region yielded a catch of 190,00 pounds with a value of $70,000. Herring sac roe harvesting in Norton Sound produced $780,000, the most valuable catch of any commercial enterprise in Norton Sound. This amount represents about 5.4 percent of the state wide catch value of $14.4 million. Finally, no appreciable groundfish activity exists here. According to GIS maps produced by the National

Marine Fisheries Service (NMFS) Alaska Regional Office, bottom trawl, pelagic trawl and longline operations did not extend into Norton Sound in 1999. As the data imply, the area comprises a relatively small proportion of the total economic value of the Alaskan fishery.

Yukon-Kuskokwim Delta (Units 1 and 2)

A variety of salmon, which are found in state waters close to the shore, comprises the primary catch in the marine portion of the proposed marine critical habitat in the Yukon-Kuskokwim Delta area. In addition, these waters harbor shellfish, herring and other species, which dwell close to the shore and can be found in state waters. However, compared to the salmon catch in other costal sections of Alaska, the Yukon-Kuskokwim area proportionally produces little commercial fish. In 1999, the waters off of the Yukon-Kuskokwim area produced a combined 3.4 million pounds of salmon for a total value $5.6 million, accounting for 1.5 percent of value and less than 1 percent of poundage. In addition, the harvesting of pollock and other groundfish in the EEZ portion of the proposed critical habitat in these units is not common. According to GIS maps produced by the NMFS Alaska Regional Office, pelagic trawl and longline operations did not frequently extend up into the proposed critical habitat areas in 1999. Some bottom trawling did occur along the southern edge of the proposed critical habitat. In general, commercial fishing in this proposed critical habitat unit contributes a relatively small portion of the overall Alaskan catch.

Bering Sea (Unit 7)

Proposed critical habitat unit 7, located in the Bering Sea north of St. Matthew Island and south of St. Lawrence Island, contributes a relatively small fraction of the total value associated with the Bering Sea fisheries. Data from fish harvest surveys conducted by the Alaska Fisheries Science Center indicate that flatfish such as yellowfin sole, rock sole, Alaska plaice, and flathead sole primarily are harvested outside the critical habitat area, from Bristol Bay northwest to St. Matthew Island. Similarly, pollock harvesting over the past decade primarily has been conducted along the northwest side of the Alaskan Peninsula and to the south and west of St. Matthew Island. In certain years, such as 1999, harvesting extended up into the proposed critical habitat area, though to a much lesser extent than occurred in the aforementioned areas. GIS maps indicate that bottom trawl, pelagic trawl and longline operations did not frequently extend up into the proposed critical habitat areas in 1999. Because other important commercial fish such as salmon, pacific herring, and shellfish are near-shore species, none of these is harvested significantly in this proposed critical habitat area. There is a crab fishery off of St. Matthew Island, but it was closed during 1999.

<u>Communities Adjacent to Marine Critical Habitat Units</u>

In addition to the North Slope Borough, the Wade-Hampton Census Area, and the Bethel Census Area profiled above, marine critical habitat units also are adjacent to St. Lawrence Island, St. Matthew Island, and portions of the Nome Census Area.

Communities in the relevant Nome area, St. Lawrence Island, and St. Matthew Island share many economic elements. All are dependent on commercial fishing, and all feature significant subsistence activity in addition to cash-based enterprises. Subsistence practices include hunting

marine mammals and reindeer, trapping, and making handicrafts. Some communities in the area (e.g., Unalakleet) have some tourism. Median annual household income in these communities ranges from a low of approximately $11,000 in Savoonga (on St. Lawrence Island) to $35,000 in Unalakleet, with many communities averaging approximately $20,000.

In this section, we provide an overview of the framework for the analysis, including a description of the methodology used to determine potential costs and benefits associated with the proposed designation of critical habitat for the spectacled eider. In addition, we describe the primary sources of information used to develop this report.

ANALYTIC FRAMEWORK

This economic analysis examines the impacts of modifying specific land uses or marine activities within areas designated as critical habitat. The analysis evaluates impacts in a "with" critical habitat designation versus a "without" critical habitat designation framework, measuring the theoretical net change in economic activity attributable to the critical habitat proposal. The "without" critical habitat designation scenario, which represents the baseline for analysis, includes all protection already accorded to the spectacled eider by listing of the species under ESA and state and Federal laws, such as the National Environmental Policy Act. The focus of this economic analysis is to determine the impacts of modifications to land uses and marine activities from the critical habitat designation that are above and beyond the impacts due to existing modifications under state, Federal, and local laws, including listing under the ESA. The ESA listing of the spectacled eider is the most significant aspect of baseline protection, as it supplements other existing protections via its listing provisions.

Steps to Identify Potential Impacts from Critical Habitat Designation

Listed below are the three questions that were posed to identify economic impacts from the proposed critical habitat designation:

1. **What land uses and marine activities within the proposed critical habitat designation may be affected?** Potential impacts on critical habitat lands and waters were identified through phone conversations with FWS staff and other Federal and state agencies and comments on the proposed critical habitat designation rule for the spectacled eider. We also identify and characterize sectors of the commercial economy that may be affected by the designation.

2. **Does the land use or marine activity involve a "Federal nexus"?** Critical habitat designation modifications can only be imposed on land uses and marine activities undertaken by state and local governments and private parties when a "Federal nexus" exists (i.e., the land uses or marine activities of concern involve Federal permits, Federal funding, or other Federal action). Activities of state and local governments and private entities that do not involve a Federal nexus are not affected by critical habitat designation. For Federally managed lands and waters, critical habitat designation may result in modification of land uses, marine activities, and other actions that could adversely modify habitat.

3. **Would the land use or marine activity face *additional* modifications or costs under the proposed critical habitat designation, above and beyond modifications or costs that already exist due to the ESA listing of the spectacled eider and other state and Federal laws and regulations?** As noted above, the baseline for analysis includes all modifications on land uses and marine activities existing prior to the proposal of critical habitat, including modifications resulting from the listing of the spectacled eider. Only impacts from modifications above and beyond this baseline are considered. Determinations of whether land uses or marine activities would face additional modifications or costs if critical habitat is designated are based on FWS guidance. Those land uses and marine activities that would be subject to additional modifications under the proposed critical habitat designation are evaluated to determine the potential national economic efficiency effects and regional economic effects. While FWS anticipates recommending no further modifications to land uses and marine activities above those that may be required as a result of the listing of the spectacled eider, some owners could theoretically incur additional costs resulting from reinitiating consultations with FWS to address spectacled eider concerns.

National and Regional Economic Effects

The economic effects of designation of critical habitat consist of those factors affecting national income (i.e., national economic efficiency effects) and those economic and social impacts that are important on a local or regional level (i.e., regional economic effects).

- **National economic efficiency effects** are those consequences of critical habitat designation that represent a change in national income. Efficiency effects include, among other things, recreation (consumer surplus) values as well as management and construction costs in an area that would not be required without critical habitat designation. Impacts on national income may be positive (benefits) or negative (costs). For example, if road construction is prohibited in an area to avoid adverse modification, primitive recreation may be preserved in the area (a benefit) while development of motorized recreation is precluded (a cost).

- **Regional economic effects** (or distributional effects) relate to equity and fairness considerations associated primarily with how income and wealth are divided among regions and groups. These effects are represented by changes in regional employment, household income, or state/local tax revenue that may have offsetting effects elsewhere in the economy. For example, if the designation of critical habitat were to negatively impact development activity within critical habitat areas, affected communities could be at an economic disadvantage relative to unaffected nearby communities whose development projects could proceed without such impacts. While this may have important economic impacts on different local economies, it may have little or no effect on the national economy.

Benefits of Critical Habitat Designation

Critical habitat designation may also result in economic benefits by aiding the preservation or enhancement of values provided directly by the species and indirectly by its habitat. Categories of potential benefits provided by the critical habitat designation for the spectacled eider include wildlife observation, biodiversity, ecosystem, and intrinsic (passive use) values. These benefits may result because society, species, and ecosystems are spared adverse and irreversible effects of habitat loss and species extinction. Furthermore, designation of critical habitat may lead to earlier recovery of the species, thus decreasing regulatory costs associated with listing. Quantitative or monetary values for these potential benefits of critical habitat designation, however, have not been estimated.

INFORMATION SOURCES

The primary sources of information for this report were communications with FWS personnel and officials from other Federal agencies, public comments on the proposal, and publicly-available data (e.g., databases available on the Internet). While FWS had received some written public comments on the proposed critical habitat designation, several entities indicated a commitment to submitting comments later in the comment period. Public hearings and meetings on the proposed designation are being conducted. At this time, public meetings have been held in Toksook Bay and Chevak. FWS has addressed natural resource councils comprised of Native representatives in Bethel and Nome. FWS also has conducted eider critical habitat meetings for non-governmental organizations, oil companies, and interested parties in Anchorage. A public informational meeting was held in Barrow on February 16, 2000, to discuss the proposals to designate critical habitat for the spectacled and Steller's eiders. A public hearing is scheduled for Monday, August 28, in Barrow, at which time public testimony will be taken on the proposed critical habitat designation. In addition, public meetings will be held in Wainwright, Atqasuk, Nuiqsut, and Point Lay in August. Additional meetings likely will be conducted in southwest Alaska. Because of time and resource constraints, all conclusions in this report should be regarded as preliminary and subject to revision following receipt of comments on the proposal.

The proposed designation of critical habitat for the spectacled eider includes Federal, state, and private lands and waters. Critical habitat designation may result in requests for modifications to land uses, marine activities, and other actions on Federally-managed land and in Federally-managed waters that threaten to adversely modify or destroy habitat. For marine activities and land uses on, and in, non-Federal lands and waters to be affected by critical habitat designation, a Federal nexus must exist (i.e., the marine activities or land uses involve a Federal permit, Federal funding, or require Federal actions). Activities on, and in, non-Federal lands and waters that do not involve a Federal nexus are not affected by the designation of critical habitat.

In this section, we first discuss the types of impacts that potentially could be incurred by Federal, state, and private owners and managers as a result of the critical habitat designation for the spectacled eider. We then evaluate the likelihood that these impacts actually will occur. To the extent that available information allows, we discuss examples of actual activities in which these entities are involved, and describe qualitatively whether they are likely to experience these impacts. As noted elsewhere, this report represents only a preliminary assessment of potential economic impacts.

POTENTIAL IMPACTS OF CRITICAL HABITAT DESIGNATION

FWS staff anticipate that, for the spectacled eider critical habitat designation, there is no action that would result in an adverse modification determination without an accompanying jeopardy determination. In other words, critical habitat designation for the spectacled eider is not expected to require modifications to land uses and marine activities above and beyond modifications that are already required under the ESA listing of the spectacled eider. This assessment can be made by looking for costs related to Section 7 consultation that would not be attributable to the listing of the spectacled eider. Potential costs could include:

- The value of time and other costs incurred in conducting Section 7 consultations with critical habitat that are beyond those associated with the listing of the spectacled eider, and;

- Delays in implementing public and private development activities which result in losses to individuals and society that would be attributed only to the critical habitat designation.

Below we discuss each aspect in more detail.

Costs Associated with Conducting Section 7 Consultations on Critical Habitat

Parties involved in Section 7 consultations include FWS and the Federal agency involved in the proposed activity. In cases where the consultation involves an activity proposed by a state or local government or a private entity (the "applicant"), the Federal agency with the nexus to the activity (the “Action agency”) has the responsibility to consult with the FWS.

To initiate a formal consultation, the Action agency submits to FWS a consultation request with an accompanying biological analysis of the effects of the proposed activity. This biological analysis may be prepared by the Action agency, the state, county, or municipal entity whose action requires a consultation, or an outside party hired by the agency or owner. However, it is important to note that the Action agency maintains sole responsibility for the contents and conclusions contained in the biological assessment. Once FWS determines that these documents contain sufficient detail to enable an FWS assessment, FWS has 135 days to consult with the Action agency and render its biological opinion. During the consultation, parties discuss the extent of the impacts on critical habitat and propose potential strategies to minimize impacts to the species and their habitats.

This analysis of economic impacts recognizes a possible distinction between occupied and unoccupied lands and waters within critical habitat. FWS expects that any potential economic impacts from the critical habitat designation incremental to the listing (over and above listing) will occur primarily on lands *unoccupied* by the species. On occupied lands, FWS has been conducting consultations for Federal activities that may affect the eider since the species was listed in 1993. Because in the Service's view the results of consultation would be virtually the same for the eider whether the habitat in question was designated critical habitat or not, any economic impacts affecting these lands are attributable to the listing of the species rather than to critical habitat. In contrast, unoccupied habitat within a critical habitat designation will not have triggered consultation in most cases and thus have not received similar protection under listing had critical habitat not been designated. Thus, in general only costs associated with consultations triggered by activities on unoccupied lands would be attributed to critical habitat designation. In the case of the spectacled eider, all lands and waters being proposed for designation are considered occupied and therefore no incremental economic impacts are anticipated.

Cost Associated with Project Delays from Section 7 Consultations on Critical Habitat

Both public and private entities could theoretically experience delays in projects and other activities due to Section 7 consultation. Regardless of funding (i.e., private or public), projects and activities are generally undertaken only when the benefits exceed the costs, given an expected project schedule. If costs increase, benefits decrease, or the schedule is delayed, a project or activity may no longer have positive benefits, or it may be less attractive to the entity funding the project. For example, if a local government undertaking a harbor project must delay its start as a result of an unresolved Section 7 consultation, the local government may incur additional financing costs (e.g., municipal bonds have to be reissued and become more expensive). Delays in public projects, such as construction of a new park, may impose costs in the form of lost recreational opportunities. The magnitude of these costs of delay will depend on the specific attributes of the project, and the seriousness of the delay. However, FWS believes that such project delays due to critical habitat designation are unlikely. The FWS has been conducting consultations already for Federal activities that may affect the eider. Because in the Service's view the results of consultation would be virtually the same for the eider whether the habitat in question was designated critical habitat or not, any economic impacts affecting these lands are attributable to the listing of the species rather than to critical habitat.

IMPACTS OF CRITICAL HABITAT ON FEDERAL LANDS AND IN FEDERAL WATERS

The areas proposed for designation as critical habitat for the spectacled eider include lands and waters held or managed by:

- U.S. Department of the Interior
  - Bureau of Land Management
  - Minerals Management Service
  - Fish and Wildlife Service
- U.S. Department of Commerce
  - National Marine Fisheries Service (within National Oceanic and Atmospheric Administration)
- U.S. Department of Defense
  - Air Force
  - Army
- U.S. Coast Guard

In contrast to Federal lands, which are under the management of a single Federal agency, Federal waters are not under single agency management. Instead, specific activities occurring in Federal waters are under jurisdiction of different Federal agencies, as discussed below.

Exhibit 4-1 summarizes the relevant agencies and their associated critical habitat units. Of the total area of all units (47,684,338), about 89 percent (42,443,986 acres) is held by these Federal agencies.

Exhibit 4-1 also summarizes preliminary conclusions regarding the likelihood of economic impacts on Federal lands and in Federal waters as a result of the critical habitat designation. Overall, the potential for new consultation or other impacts on habitat management is low. All of the most significant facilities and activities included in the critical habitat designation are currently occupied by spectacled eiders. Therefore, any consultation would be attributable to the listing of the species. Furthermore, several of the units are already part of an ongoing habitat protection program, reducing the likelihood that the designation of critical habitat would introduce new consultation or changes in management.

In this section, we first discuss specific potential impacts of this designation on Federal lands and waters in the critical habitat area. Then, we discuss the likelihood that these impacts actually will occur.

Bureau of Land Management (BLM)

The Bureau of Land Management (BLM) is responsible for public use, subsistence use, recreation, research, and mineral extraction on property under their jurisdiction, which includes lands within the National Petroleum Reserve - Alaska and waters adjacent to them. BLM manages approximately 75 percent of the habitat in Unit 3 as the NPR-A.

FEDERAL LANDS AND WATERS:
SUMMARY OF IMPACTS UNDER THE PROPOSED CRITICAL HABITAT DESIGNATION
F O R T H E S P E C T A C L E D E I D E R

Federal Agency	**Area Affected**	**Critical Habitat Unit**	**Current or Planned Activities that May Impact Critical Habitat**	**Occupied?***	**Potential for New or Reinitiated Consultation or Other Impacts****
Bureau of Land Management	National Petroleum Reserve - Alaska (NPR-A)	3	Oil and gas exploration and development; mining	Yes	Low
Minerals Management Service	Federal Waters, North Slope	4	Oil and gas exploration and development; mining	Yes	Low
U. S. Fish and Wildlife Service	Arctic National Wildlife Refuge (NWR)	3	Wildlife management	Yes	Low
	Yukon Delta NWR	1	Wildlife management	Yes	Low
National Marine Fisheries Service	Federal Waters	2, 4-7	Commercial fishing and marine management	Yes	Low
U.S. Air Force	Bullen Point Short Range Radar Site	1	Maintenance and air traffic	Yes	Low
	Oliktok Long Range Radar Site	3	Maintenance and air traffic	Yes	Low
	Lonely Short Range Radar Site	3	Maintenance and air traffic	Yes	Low
	Point Barrow Long Range Radar Site	3	Maintenance and air traffic	Yes	Low
	Wainwright Short Range Radar Site	3	Maintenance and air traffic	Yes	Low
	Cape Romanzof Long Range Radar Site	1	Maintenance and air traffic	Yes	Low

Exhibit 4-1 (continued)

FEDERAL LANDS AND WATERS:
SUMMARY OF IMPACTS UNDER THE PROPOSED CRITICAL HABITAT DESIGNATION
FOR THE SPECTACLED EIDER

Federal Agency	**Area Affected**	**Critical Habitat Unit**	**Current or Planned Activities that May Impact Critical Habitat**	**Occupied?***	**Potential for New or Reinitiated Consultation or Other Impacts****
U.S. Army - Local Training Areas	North Slope - Barrow	3	Troop training exercises	Yes	Low
	Y-K Delta - Emmonak, Alakanuk, Scammon Bay, Hooper Bay, Chevak, Newtok, Tununak, Toksook Bay, Nightmute, Chefornak, Kipnuk, Mekoryuk	1	Troop training exercises	Yes	Low
U.S. Army - Local Training Areas, continued	St. Lawrence Island - Gambell, Savoonga	7	Troop training exercises	Yes	Low
	Norton Sound - Elim, Koyuk, Shaktoolik, Unalakleet, St. Michael, Stebbins, Kotlik	5	Troop training exercises	Yes	Low
U.S. Coast Guard	Federal Waters	2, 4-7	Boat permitting; oil spill planning and response	Yes	Low

* Units are categorized as occupied/unoccupied based on descriptions provided in critical habitat proposal. Areas that are adjacent to occupied waters are denoted as occupied.
** New consultations or impacts that are necessitated by designation of critical habitat that would not have been needed given the listing of the species in the absence of critical habitat.

In 1999, an oil and gas lease sale was conducted for the Northeast Planning Area of the NPR-A. Approximately 18 percent of the Northeast Planning Area that is currently available for lease is within Unit 3. BLM reported that it has received eight applications for permits to drill in the northeast planning area this year. Since the lease sale began, 100 parcels have been leased to private companies for oil and gas drilling and exploration for a total of $105 million in lease revenues. Depending on the outcome of exploration and the potential ensuing development, leasing on other portions of the proposed unit may occur.

Drilling occurs only in the winter when the eiders have left the breeding area. At that time, lessors construct ice roads and ice pads to enable transport and parking of equipment. Drilling ends before the spring thaw, at which time the ice roads and ice pads melt, leaving only the drill hole behind. BLM has raised concerns that designation of critical habitat may preclude oil and gas drilling activities throughout the entire year on currently leased areas. BLM also is concerned that additional consultation could potentially be required regarding these newly-leased portions of the NPR-A.

At the time that this report was finalized, BLM had not submitted written

comments on the proposed critical habitat designation for the spectacled eider. FWS received written comments from companies involved in the leasing of the NPR-A (the Alliance - Alaska Support Industry and British Petroleum, Inc.) regarding the proposal for critical habitat designation. These entities expressed the same concerns as BLM regarding the impact of critical habitat designation on oil and drilling exploration in the proposed areas.

FWS anticipates few effects on BLM lands from critical habitat designation for the spectacled eider. For all previous consultations for which a "not likely to adversely affect" determination was made, and for which the FWS concurred, the FWS fully expects to concur with a corresponding determination that the action is not likely to result in the destruction or adverse modification of critical habitat. Only for those actions resulting in jeopardy to the species do we expect to meet the threshold for destruction or adverse modification of critical habitat. No such jeopardy calls have been made to date.

Minerals Management Service (MMS)

While BLM manages oil and gas drilling and exploration on land in the NPR-A, the Minerals Management Service (MMS) manages oil and gas drilling and exploration as well as mining in Federal waters. In addition, the MMS is responsible for oil spill contingency planning and response in these waters.

FWS received comments from MMS expressing concern that, as a result of critical habitat designation for the spectacled eider, MMS will have to limit or modify its drilling management practices in critical habitat areas in the North Slope. Previously, MMS has considered the spectacled eider under the listing during the oil spill contingency planning and response efforts. The agency recommends that the FWS limit the critical habitat for spectacled eiders to "the 'specific' wintering area south of St. Lawrence Island and the 'specific' molting areas in Ledyard Bay and Norton Sound."

FWS anticipates few effects on MMS activities from critical habitat designation for the spectacled eider. For all previous consultations for which a "not likely to adversely affect" determination was made, and for which the FWS concurred, the FWS fully expects to concur with a corresponding determination that the action is not likely to result in the destruction or adverse modification of critical habitat. Only for those actions resulting in jeopardy to the species do we expect to meet the threshold for destruction or adverse modification of critical habitat. No such jeopardy calls have been made to date.

U.S. Fish and Wildlife Service

The Fish and Wildlife Service is responsible for National Wildlife Refuge lands and management of those waters considered part of a National Wildlife Refuge. Refuges in or near the proposed critical habitat areas include the Yukon Delta and Arctic National Wildlife Refuges, along with small parcels of the Alaska Maritime National Wildlife Refuge. In addition, the FWS is responsible for the management of polar bears, walruses, and sea otters. The FWS already manages these lands and waters in a manner that protects the spectacled eider, and thus anticipates no modifications to its land management practices.

National Marine Fisheries Service (NMFS)

The National Marine Fisheries Service (NMFS) is responsible for commercial fishing and marine mammal management (other than polar bears, walruses, and sea otters). Specific fisheries managed by NMFS include the Bering Sea groundfish, crab, and Alaska scallop fisheries.

Any vessel participating in a Federally-managed fishery in the Bering Sea and Gulf of Alaska (from 3 to 200 miles offshore) must have a Federal fisheries permit to fish for a particular species, and the operator must have a Federal license limitation permit which limits access into the fishery. Permits also specify allowable boat activities. Examples of Federal permits include:

- Registered Buyer Permit,
- Individual Fishing Quota (IFQ) Permits,
- Community Development Quota (CDQ) Permits,
- Scallop Moratorium Permit (SMP),
- Federal Fisheries Permit (FFP),
- Federal Processor Permit (FPP),
- License Limitation Program (LLP), and
- High Seas Fishing Compliance Act (HSFCA) Permit.

In addition, NMFS requires American Fisheries Act (AFA) permits when fishing in Federally-managed waters. Types of AFA permits include the following:

- AFA Catcher Vessel Permit,
- AFA Catcher/Processor Permit,
- AFA Mothership Processor Permit,
- AFA Inshore Processor Permit,
- AFA Inshore Cooperative Permit, and
- AFA Replacement Vessel Permit.

NMFS management of these fisheries enables FWS consultation on fisheries management. To the extent that fishery management would affect the critical habitat of the spectacled eider, FWS theoretically could require modifications to fisheries management as a result of the designation of proposed critical habitat for the eider.

FWS received comments from the North Pacific Fishery Management Council detailing potential impacts of spectacled eider critical habitat designation in areas fished by their vessels. The commenter states that, from 1990 to 1998, an average of 5.2 percent of the St. Matthew blue king crab fishery landings came from the area between St. Matthew and St. Lawrence Islands, which includes proposed critical habitat Unit 7. Additionally, crab are caught in Norton Sound, proposed critical habitat Unit 5. As indicated above, these fisheries are managed and permitted by NMFS and thus a Federal nexus exists that would entail FWS consultation on management of these fisheries.

In the past, FWS has conducted semi-annual formal consultations with NMFS on the Bering Sea fisheries. FWS has concurred with NMFS's determination that activity in these fisheries is not likely to adversely affect spectacled eiders. In addition, FWS has cooperated with the North Pacific Fisheries Observer Training Center since 1993 to ensure that all fisheries observers are trained in seabird identification. These observers are instructed to report all interactions between spectacled eiders and gear or vessels. To date, FWS is unaware of any spectacled eiders having been taken by these fisheries. In 1999, as a result of this lack of documented take, FWS discontinued formal consultations on this fishery, and began conducting only informal consultations on it. FWS does not anticipate that the designation of critical habitat will change the Service's approach to consultations on or required activity modifications in this fishery.

U.S. Air Force

In a letter to FWS, the U.S. Air Force indicated that several Air Force installations will fall within the critical habitat for the spectacled eider: Bullen Point Short Range Radar Site, Oliktok Long Range Radar Site, Lonely Short Range Radar Site, Point Barrow Long Range Radar Site, Wainwright Short Range Radar Site, and Cape Romanzof Long Range Radar Site. These radar facilities are, for the most part, remote and generally passive in terms of activities (e.g., routine maintenance and some air traffic). The letter suggests that the Air Force is concerned that they would have to modify maintenance practices and air traffic management at these sites as a result of the designation of the proposed critical habitat areas. The Air Force also indicates that previous consultations required under Section 7 of the Endangered Species Act, along with strict compliance with the Reasonable and Prudent Measures of the Biological Opinions, and the strong guidance of Integrated Natural Resources Management Plans (INRMPs) make the additional designation of critical habitat unnecessary.

Previous consultations on these facilities have already resulted in minimization of their effects on spectacled eiders. FWS does not expect the designation of critical habitat to result in any additional regulatory burden on the Air Force, nor does the Service anticipate or envision any additional protective measures that could be required as a result of critical habitat designation.

U.S. Army

The U.S. Army maintains numerous local training areas (LTAs) for the Alaska Army National Guard (AK ARNG) within the areas proposed for critical habitat designation for the spectacled eider. The Army estimates that the LTAs involve as many as 1.3 million acres of the proposed critical habitat. Specifically, the AK ARNG has LTAs in the vicinity of Norton Sound at Elim, Koyuk, Shaktoolik, Unalakleet, St. Michael, Stebbins, and Kotlik; the North Slope at Barrow; the Y-K Delta at Emmonak, Alakanuk, Scammon Bay, Hooper Bay, Chevak, Newtok, Tununak, Toksook Bay, Nightmute, Chefornak, Kipnuk, and Mekoryuk; and St.

Lawrence Island at Gambell and Savoonga. The Army states that each LTA has been established through various Special Use agreements with Federal, state, Native, and private landowners. The Army has expressed concern that the designation of critical habitat may require changes in National Guard training exercises at these LTAs. The Service conducts Section 7 consultations on these activities each year.

It is FWS' experience that these exercises have no affect on spectacled eiders, due to the time of year that they are conducted, and the low-environmental-impact methods used to carry them out. FWS does not anticipate that designation of critical habitat will change the way in which these annual informal consultations are conducted.

U.S. Coast Guard

The U.S. Coast Guard is responsible for public safety, enforcement, and oil spill preparedness and response in Federal waters. In addition, all fishing vessels must have a Federal permit from the USCG. Small vessels have USCG numbers, while larger vessels must have fishery endorsements that are also issued by the USCG. At this time, while the FWS is not aware of the U.S. Coast Guard having considered the spectacled eider in their permitting and oil spill contingency planning and response efforts, FWS does not foresee any formal consultation on this issue that would not otherwise already be necessitated by virtue of the species being listed.

Likelihood of Impact

As noted above, FWS does not anticipate that the critical habitat designation for the spectacled eider will have any incremental effects beyond those associated with the listing of the species. That is, FWS anticipates no further modifications to land uses or marine activities due to the designation of critical habitat for the spectacled eider that are beyond those already required by the listing of the eider. In addition, because the proposed critical habitat already is occupied and has been subject to consultations in the past due to the listing, FWS anticipates no new consultations or substantive reinitiations of consultations as a result of the designation of critical habitat for the spectacled eider. Therefore, FWS considers it unlikely that critical habitat designation for the spectacled eider will introduce any of the effects about which Federal entities have expressed concern.

IMPACTS OF CRITICAL HABITAT ON STATE LANDS AND IN STATE WATERS

The areas proposed for designation as critical habitat for the spectacled eider include property held by the State of Alaska. Of the total area encompassed by the critical habitat units (47,684,338 acres), about eight percent (3,929,276 acres) is held by the state. Uses of state lands and waters can only be affected by designation of critical habitat when activities on those lands and in those waters involve a Federal nexus.

Exhibit 4-2 summarizes our preliminary assessment of the potential for impacts to state

agencies. The table indicates the nature of activities that may positively or negatively affect critical habitat, whether eiders currently occupy the area, and our assessment of the overall potential for the designation to create new consultation responsibilities or other types of economic impacts such as delays in projects. These conclusions are based on information in the critical habitat proposal, as well as FWS guidance. Activities that may be affected by critical habitat designation primarily include oil and gas development and exploration, commercial fisheries management, wildlife management, and management of state lands and waters.

In this section, we first discuss the specific potential impacts of this designation on state lands and waters in the critical habitat area. We then discuss the likelihood that these impacts actually would occur. At the time that this report was finalized, FWS had not received formal written comments from state agencies on the designation. FWS receipt of written comments from the state agencies will enable more complete response to specific concerns.

Alaska Department of Fish and Game (ADFG)

The Alaska Department of Fish and Game (ADFG) administers programs governing commercial fishing and management of designated state lands. The ADFG manages fisheries that occur in state waters, including the following:

- Groundfish fisheries (e.g., ling cod, blue rockfish, black rockfish),
- Bering Sea crab fisheries,
- Alaska scallop fisheries,
- Salmon fisheries,
- Dive fisheries for invertebrates (e.g., urchins, abalone, clams, sea cucumbers),
- Shrimp fisheries,
- Clam fisheries,
- Herring fisheries, and
- Aquaculture (e.g., oysters).

Exhibit 4-2

STATE LANDS AND WATERS:
SUMMARY OF IMPACTS UNDER THE PROPOSED CRITICAL HABITAT DESIGNATION
FOR THE SPECTACLED EIDER

State Agency
Area Affected
Proposed Critical Habitat Unit

Current or Planned Activities that May Impact Critical Habitat
Occupied?*
Potential for New or Reinitiated Consultation or Other Impacts**

Alaska Department of Fish and Game						State Lands and
Waters	2-7	Commercial Fishing,				
"Special			Area"			Management
Yes	Low					
Alaska Department of Natural Resources						State Lands and
Waters	2-7	Resource				Extraction
Yes	Low					

* Units are categorized as occupied/unoccupied based on descriptions provided in critical habitat proposal. Areas that are adjacent to occupied waters are denoted as occupied.

**New consultations or impacts that are necessitated by designation of critical habitat that would not have been needed given the listing of the species in the absence of critical habitat.

Commercial fishing in state waters for species managed solely by the state do not require Federal commercial fishing permits. However, in some instances, Federal and state agencies share responsibilies over fisheries. For example, in the cases of the Bering Sea crab and Alaska scallop fisheries, NMFS issues Federal permits for these species, then delegates to the state the management of the fisheries for these species that occur in state waters. This situation creates a Federal nexus with the ADFG in some, but not all, state-managed fisheries. Furthermore, to the extent that ADFG uses Federal funds to administer its state-only commercial fishing program, a nexus may be established.

Although FWS has not yet received comments from ADFG regarding the effects of the proposed designation of critical habitat for the spectacled eider on state-managed fisheries, FWS received comments from the North Pacific Fishery Management Council regarding potential impacts of critical habitat designation on near-shore areas fished by their vessels. The commenter indicates that crab may be caught in the portion of Norton Sound that is in the proposed critical habitat (Unit 5). This portion includes both Federal and state waters. The crab fisheries require a Federal permit, but actual management of the crab fishery in state waters is delegated to the state. Therefore, as the crab fisheries are permitted by NMFS, a Federal nexus exists that would enable FWS consultation with the state on management of the portions of these fisheries that occur in state waters.

In addition to fisheries, ADFG manages certain "special areas" that are considered essential to the protection of fish and wildlife habitat. These areas include state wildlife sanctuaries, state wildlife refuges, and state critical habitat areas. To the extent that the state uses Federal funds to manage these areas, a Federal nexus would be created. In addition, to the extent that state management of these areas involves construction or maintenance activities requiring a Federal permit, FWS may be able to consult with ADFG on its management of these areas. For example, if filling wetland is involved in any activity performed by the ADFG on, or in, state lands and waters, a Federal Clean Water Act Section 404 permit is required from the Army Corps of Engineers. Likewise, activities in or affecting navigable waters require a permit from the Corps under Section 10 of the Rivers and Harbors Act, and discharge of dredged material into ocean waters requires a permit from the Corps under Section 103 of the Marine Research, Sanctuaries and Protection Act.

However, it is important to note that if the state determines that any state-managed fishery or activity with a Federal nexus has the potential to affect spectacled eiders, a Section 7 consultation was already necessitated by virtue of the species being listed; the consultation was not made necessary as a result of critical habitat designation.

Alaska Department of Natural Resources (DNR)

The Alaska Department of Natural Resources (DNR) manages economic development of state lands (e.g., oil and gas leasing, mining, and gravel extraction). In addition, the DNR's Division of Parks and Outdoor Recreation manages state parks and the recreational activities allowed within them.

Activities under the jurisdiction of the DNR may involve a Federal nexus through Federal permitting and/or Federal funding. For example, private entities must obtain permits from MMS for oil and gas drilling and exploration in state waters, which include the first three miles of water from shore.

Because no state parks currently are located within the proposed critical habitat units for the spectacled eider and protections already are required as a result of the species being listed under the ESA, DNR management of park activities is unlikely to be affected by the proposed critical habitat designation.

Likelihood of Impact

As noted above, FWS does not anticipate that the critical habitat designation for the spectacled eider will have any incremental effects beyond those associated with the listing of the species. That is, FWS anticipates no further modifications to land uses or marine activities due to the designation of critical habitat for the spectacled eider that are beyond those already required by the listing of the eider. In addition, because the proposed critical habitat already is occupied and has been subject to consultations in the past due to the listing, FWS anticipates no new consultations or substantive reinitiations of consultations as a result of the designation of critical habitat for the spectacled eider. Therefore, FWS considers it unlikely that the critical habitat designation will affect State entities through the nexuses described above.

IMPACTS OF CRITICAL HABITAT ON MUNICIPAL AND PRIVATE LANDS

Private property owners include Native Alaskans, who own land under the Alaskan Native Claims Settlement Act (ANCSA) and the Native Allotment Act; regional and village corporations; private corporations and businesses; and non-Native private citizens. The areas proposed as critical habitat include 1,297,491 acres of Native-owned area and 13,585 acres of privately-owned lands, roughly three percent and less than 0.1 percent of the total critical habitat area proposed, respectively.

For municipal and private land and marine uses to be affected by the proposed designation of critical habitat, a Federal nexus must exist (i.e., land uses or marine activities that involve Federal permits, Federal funding, or other Federal actions). Activities on municipal and private lands that do not involve a Federal nexus are not affected by the designation of critical habitat; however,

additional research or public comments would be useful to determine the presence of Federal nexuses. In addition, municipal and private lands within the critical habitat designation boundaries that do not contain primary constituent elements (e.g., developed parcels) are not considered critical habitat areas.

Exhibit 4-3 summarizes our preliminary assessment of the potential for impacts to municipalities and private entities. The table indicates the nature of activities that may affect critical habitat, whether eiders currently occupy the area (based on FWS determination), and our assessment of the overall potential for the designation to create new consultation responsibilities or other types of economic impacts such as delays in projects. These conclusions are based on information in the critical habitat proposal and on received comments, as well as FWS guidance.

Exhibit 4-3

PRIVATE LANDS:
SUMMARY OF IMPACTS UNDER THE PROPOSED CRITICAL HABITAT DESIGNATION FOR THE SPECTACLED EIDER

Private Entities	Critical Habitat Unit	Occupied?*	Current or Planned Activities that May Impact Critical Habitat	Potential for New or Reinitiated Consultation or Other Impacts**
North Slope Borough	3	Yes	Community Expansion	Low
Ukpeagvik Inupiat Corporation	3	Yes	Community Expansion; Public Works Projects	Low
Arctic Slope Regional Corporation	3	Yes	Community Expansion; Public Works Projects	Low
City of Point Hope	3	Yes	Community Expansion; Public Works Projects	Low
Native Village of Atqasuk	3	Yes	Community Expansion; Public Works Projects	Low
City of Wainwright	3	Yes	Community Expansion; Community Projects	Low
Association of Village Council Presidents (AVCP)	1	Yes	Community Expansion; Public Works Projects	Low
Wainwright Traditional Council	3	Yes	Community Expansion; Public Works Projects	Low
Nunamiut Corporation	3	Yes	Community Expansion; Public Works Projects	Low

Native Village of Kaktovik	3	Community Expansion; Public Works Projects	Yes	Low	
City of Atqasuk	3	Community Expansion; Public Works Projects	Yes	Low	

* Units are categorized as occupied/unoccupied based on descriptions provided in critical habitat proposal. Areas that are adjacent to occupied waters are denoted as occupied.

** New consultations or impacts that are necessitated by designation of critical habitat that would not have been needed given the listing of the species in the absence of critical habitat.

In this section, we first discuss specific potential impacts of this designation on municipalities and private lands in the critical habitat area. We then discuss the likelihood that these impacts actually would occur in the areas under analysis.

Community Expansion and Maintenance Projects

Communities in the proposed critical habitat area may undertake a variety of community expansion and maintenance activities, including:

- Road building,
- Sewer and wastewater treatment facility construction,
- Community housing construction,
- Harbor and marina construction, and
- Airport construction.

In many cases, community expansion activities prompt a Federal nexus and therefore are subject to Section 7 consultation. For example, private developers, regional village corporations, and municipalities require a Federal Clean Water Act Section 404 permit issued by the Army Corps of Engineers if development affects wetland areas. A Federal nexus also exists if development projects require a National Pollutant Discharge Elimination System permit from the U.S. Environmental Protection Agency to address wastewater discharges, or if a permit from the Corps is required under Section 103 of the Marine Research, Sanctuaries and Protection Act to address discharges of dredged material into ocean waters.

Federal grants for community expansion also prompt a Federal nexus. These may include funds from the Federal Aviation Administration for airport projects, Federal Housing Authority funds for community housing, and the Bureau of Indian Affairs for various projects.

Communities are concerned about the potential for project delays and additional project costs associated with Section 7 consultations regarding these projects. For example, cities and townships may need a Clean Water Act Section 404 permit for residential and community development. To the extent that the proposed development affects a critical habitat area, a Federal nexus would exist. Cities and townships have expressed concern that the consultation process would delay development project(s) until after the permit has expired, and thus the city would have to pursue a renewal. However, it is important to note that if the project may affect spectacled eiders, such consultation is necessitated with or without the presence of critical habitat. Indeed, the Service has been conducting such consultations for years, and has been doing so in such a way that most parties are apparently unaware that these consultations even occur. This is not expected to change should the Service designate critical habitat for the spectacled eider.

The Lower Kuskokwim Economic Development Council and the Clark's Point Village Council have related concerns regarding the effect of consultation on development projects. In addition to the issue of project delay, these communities cite increased costs for conducting an assessment and the implications of the consultation process for the procurement of Federal grant monies. One commenter states that a Section 7 consultation may add 300 or more days for review and evaluation of a construction project grant application. The commenter maintains that steps involved with this review and evaluation "would consist of a biological assessment of 180 days, a USFWS review of 30 days, and a formal consultation of 90 days." Furthermore, since Federal grants are applied for and designated within a one year period, the 300-day consultation could put the grant application process at a standstill. In addition, the commenters believe that these consultations would place a costly burden on local residents and village organizations that are attempting to promote local economic development in the region. It is important to note that the commenter is citing the maximum lengths

of time needed to conduct a formal Section 7 consultation. Very few formal consultations have ever occurred for a village-based non-oil-exploration activity on the North Slope. None have occurred on the Yukon-Kuskokwim Delta. Moreover, as noted above, projects that may affect spectacled eiders require consultation regardless of whether critical habitat is designated.

In addition, State Representatives Gail Phillips and Brian Porter, as well as State Senator Drue Pearce, are concerned that designation of critical habitat for the spectacled eider will hinder projects or programs proposed within the boundaries of the designated critical habitat areas by imposing not only regulatory but also court-ordered burdens. They state a concern that designation of critical habitat will only lead to unnecessary (and costly) litigation over uses of Alaska's natural resources, such as development programs.

Likelihood of Impact

As noted above, FWS does not anticipate that the critical habitat designation for the spectacled eider will have any incremental effects above those associated with the listing of the species. That is, FWS anticipates no further modifications to land uses or marine activities due to the designation of critical habitat for the spectacled eider that are beyond those already required by the listing of the eider. In addition, because the proposed critical habitat already is occupied and has been subject to consultations in the past due to the listing, FWS anticipates no new consultations or substantive reinitiations of consultations as a result of the designation of critical habitat for the spectacled eider. Therefore, FWS considers it unlikely that any appreciable effects on small entities associated with critical habitat designation for the spectacled eider will occur.

OTHER POTENTIAL IMPACTS

The FWS currently is not aware of other Federal activities taking place on lands or in waters proposed as critical habitat for the spectacled eider. However, some Federal activities have been identified as potential concerns, but are not addressed in the summaries above. Additional information on the nature of other potential Federal activities would be helpful in evaluation of the economic effects of critical habitat designation.

This section considers socioeconomic impacts of designating critical habitat for the spectacled eider, looking beyond those effects discussed above. Specifically, we briefly consider:

- Potential effects on small entities, including businesses and governments; and
- Potential social and community impacts for rural communities and Alaska Natives.

POTENTIAL EFFECTS ON SMALL ENTITIES

The Regulatory Flexibility Act (as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) of 1996) states that whenever a Federal agency is required to publish a notice of rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. SBREFA amended the Regulatory Flexibility Act to require Federal agencies to provide a statement of the factual basis for certifying that a rule will not have a significant economic impact on a substantial number of small entities. This section addresses the potential impacts to small entities and communities located within the proposed critical habitat designation.

Small entities in the proposed critical habitat areas for the spectacled eider that could theoretically be affected by the critical habitat designation include: commercial fishing enterprises; sport fishing, hunting and trapping enterprises; consultant businesses; and government entities. However, as explained below it is unlikely that there will be effects on small entities associated with the critical habitat designation for the spectacled eider.

Commercial Fishing

As noted earlier, commercial fishing enterprises generally require Federal permits when fishing in Federal waters. Permitting constitutes a Federal nexus. As a result, activities of commercial fishing enterprises working in Federal waters could be affected by the Section 7 consultation on permit issuance. Likewise, commercial fishing enterprises in state-managed fisheries that require Federal permits could also be affected by Section 7 consultation. NMFS or ADFG fisheries management consultation under Section 7 could result in changes to fisheries management practices, thereby affecting allowable catch rates for commercial enterprises. Finally, if Federal funds were to be used by State of Alaska agencies to manage commercial marine fishery programs, a nexus would be established that would require Section 7 consultation on state fisheries management practices.

Commercial fishing enterprises range from large fleets to single boats. However, it is clear that many commercial fishing enterprises are small operations. In addition, commercial fishing operations depend on seasonal work, leaving them particularly vulnerable to changes in allowable commercial fishing activities or ongoing consultation processes that could delay the start of a fishing

season. As a result, small commercial fishing enterprises may be affected by changes in allowable marine activities. However, the FWS is already consulting on Federally managed fisheries, and FWS believes a critical habitat designation is unlikely to change the approach to these consultations. The result would be that fishermen are unlikely to see a difference with or without a critical habitat designation for the spectacled eider.

Hunting, Sport Fishing, and Trapping

Hunting, sport fishing, and trapping are regulated by the State of Alaska, which issues licenses, tags, permits, and other required hunting, fishing, and trapping documentation. Additional Federal requirements apply to waterfowl hunting (i.e., waterfowl hunters must have a duck stamp) and hunting on Federal lands. Therefore, Section 7 consultation may be required on Federal management practices related to hunting on Federal land. FWS also may consult on Federal waterfowl management practices. Finally, a nexus for Section 7 consultation may exist if the state uses Federal funding to administer sport fishing, hunting, and trapping regulatory programs.

Sport fishing, hunting, and trapping enterprises are generally very small and work is seasonal in nature. As a result, these enterprises could be affected by changes in Federal and state allowable hunting and trapping practices as a result of the designation of critical habitat for the spectacled eider. Considering the eider's biology and the current harvesting practices, however, any such effects on FWS-managed lands are unlikely. Federal lands included in the designation of critical habitat for the spectacled eider include the Arctic and Yukon Delta National Wildlife Refuges. Because FWS manages these Refuges and has already taken eider considerations into account, additional changes to Refuge management to address spectacled eider concerns are unlikely. On the other hand, Section 7 consultations on these activities on other Federally-managed lands could theoretically cause changes to land management practices, but result from the species being listed rather than critical habitat designation.

Oil and Gas Exploration Consulting Operations

As noted earlier in the report, oil and gas exploration activities require a number of Federal permits. These permitting activities establish a nexus that may require the permitting agencies to consult with the FWS regarding exploration activities. These activities theoretically have the potential to be modified as a result of critical habitat designation for the spectacled eider.

Among the firms supporting the oil and gas exploration industry are small firms that provide contracting services. These firms could potentially be affected by delays or activity modifications resulting from ESA consultations on oil and gas exploration activities. However, as previously noted, oil and gas exploration activities are already subject to consultation requirements, and FWS has been conducting such consultations with oil industry representatives for years. Therefore, the incremental effect of critical habitat designation on these consultations is expected to be negligible.

Small Governments

The proposed critical habitat for the spectacled eider encompasses a number of small coastal communities in the Wade Hampton and North Slope boroughs. Activities in these communities,

such as road building, harbor dredging, or sewer construction, may require a Federal permit (e.g., Clean Water Act Section 403 or 404 permit). These permitting requirements establish a nexus that requires the Action agency to consult with FWS regarding these projects.

While some of these communities have adequate resources to fund the personnel time and analyses required by these consultations, as well as to respond to required modifications stemming from the consultation, many smaller communities do not have sufficient resources to support the consultation process. In these cases, theoretically consultations might place a significant strain on municipal personnel and funds, and could require diverting these resources from other community priorities. However, it is important to note that in every foreseeable instance, the need to consult on these projects derives from the original listing of the species, and not from the designation of critical habitat. Additional information on the nature of costs of consultations to applicants would be helpful in evaluation of the economic effects of critical habitat designation.

POTENTIAL EFFECTS ON RURAL COMMUNITIES AND ALASKA NATIVES

The designation of critical habitat for the spectacled eider theoretically may affect rural communities and Alaska Natives in several ways:

- Effects on Native and non-Native subsistence fishing, hunting, and trapping; and
- Effects on commercial enterprises that provide significant economic support for rural communities;

We discuss each of these in more detail below.

Subsistence Fishing, Hunting, and Trapping

Subsistence fishing, hunting, and trapping are vital source of food, materials, and tradable goods and cultural sustenance for many rural communities, particularly those populated primarily by Alaska Natives. For example, a mixed economy based on cash and subsistence practices exists in the Bering Strait Region (marine units 5 and 7). While the rural cash economy is supported by Federal, Tribal, state and local government jobs, a subsistence economy exists year round. Community members hunt and trap game and birds, catch fish, and gather indigenous plants. Other subsistence practices include processing meat, hides, and other animal and plant resources for consumption and utilization; bartering, sharing, and selling harvested foods; carving, sewing, beading and basket making; and boat and sled building.

The nexus for the Alaskan subsistence tradition of the proposed critical habitat designation for the spectacled eider is complex. Subsistence hunting and fishing requires state hunting and fishing licenses, as well as any state-issued Tier II subsistence permits (when applicable). Subsistence hunting, trapping, and fishing on Federal lands and waters, pursuant to Title VIII of the Alaska National Interest Lands Conservation Act, requires additional Federal permits and other documentation from the Federal Subsistence Board.

A Federal nexus that requires Section 7 consultation on state subsistence permitting would exist only

if the state obtained Federal funding to assist in administering the hunting, trapping, fishing, or subsistence regulatory programs. FWS consultations with the state on subsistence management may affect any Alaskan non-Federal lands and waters and result in required changes in state subsistence management practices.

Section 7 consultations with Federal land holders could theoretically result in required changes in subsistence management practices on Federal lands and in Federal waters. For example, as a component of the proposed critical habitat for the spectacled eider, the Yukon Delta National Wildlife Refuge could be so affected. However, FWS, in its role as a member of the Federal Subsistence Boards, already provides input on Federal subsistence management practices. As a result, additional changes to Federal subsistence practices are unlikely, because FWS procedures already integrate concerns about the spectacled eider into the Federal Subsistence Board. Consequently, the designation of critical habitat for the eider is unlikely to affect land and water subsistence management practices in the Yukon Delta National Wildlife Refuge or other Federal lands and waters within the proposed critical habitat.

Rural Communities and Alaska Natives

Small coastal communities rely heavily on commercial fishing, hunting, and trapping to sustain their economies. Changes to these industries are unlikely to result from the critical habitat designation for the spectacled eider and therefore significant economic affects with these communities in unlikely, as described above.

Additionally, community members sometimes travel to other parts of the state (e.g., North Slope) to take advantage of job opportunities, then bring their wages home. These job opportunities include commercial fishing and oil and gas exploration, two activities that potentially could be affected by the critical habitat designation for the spectacled eider (see Section 4 above). Any effect on these job opportunities could impact rural communities through the inflow of money (i.e., wages) into that economy.

Many rural communities are undertaking infrastructure-enhancing projects to improve quality of life for their residents. While these types of projects are important to any community, the rural nature of these areas makes basic infrastructure improvements particularly vital to improve the standard of living. The land-based portions of the proposed critical habitat for the spectacled eider encompass several rural communities, although it is unknown to what extent the footprints of these projects encompass the primary constituent elements of spectacled eider critical habitat. To the extent that infrastructure projects are subject to Section 7 consultation (e.g., projects requiring Clean Water Act Section 403 or 404 permits, as described above), the residents in these communities could be affected by the ESA consultation process. However, the need to consult on these projects derives from the original listing of the species under the ESA, and not from the designation of critical habitat.

Approximately 20 of the rural communities located in or adjacent to the proposed critical habitat area for the spectacled eider are composed predominately of Alaska Natives. As subsistence anglers and hunters, as well as small community residents, many Native Alaskans could theoretically be affected by Section 7 consultation for the spectacled eider in ways already described above. However, for predominately Native Alaskan communities, subsistence reaches far beyond individual-based hunting and gathering practices characteristic of western cultures and

encompasses a cohesive, kinship-based, and community-oriented way of life passed on from generation to generation.

Activities in predominately Native Alaskan communities are representative of the types of projects potentially affected by Section 7 consultation, as described above. For example, some villages are located in marine environments where flooding may occur. Shaktoolik (on the coast adjacent to Unit 5) has experienced significant coastal flooding and stream overflow several times in the past. Storms are frequent in the spring and fall, exacerbating coastal erosion. The Norton Sound Health Corporation states that the Army Corps of Engineers has assigned the area a high flood hazard potential. Erosion control activities require Federal permits, a nexus that requires Section 7 consultations to ensure that activities being permitted are not likely to jeopardize the continued existence of listed species or result in destruction or adverse modification of critical habitat. Shaktoolik also remains relatively isolated (primarily accessed by air and water) and may initiate road construction in the future, potentially requiring Section 7 consultations on road-building activities.

Likelihood of Impact

As noted above, FWS does not anticipate that the critical habitat designation for the spectacled eider will have any incremental effects on activities with a Federal nexus above those associated with the listing of the species. That is, FWS anticipates no further modifications to land uses or marine activities due to the designation of critical habitat for the spectacled eider that are beyond those already required by the listing of the eider. In addition, because the proposed critical habitat already is occupied and has been subject to consultations in the past due to the listing, FWS anticipates no new consultations or substantive reinitiations of consultations as a result of the designation of critical habitat for the spectacled eider. Therefore, FWS considers it unlikely that the effects on small entities discussed above associated with critical habitat designation for the spectacled eider will occur.

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APPENDIX A:

MAPS OF
CRITICAL HABITAT UNITS

SPECTACLED EIDER
CRITICAL HABITAT UNITS 1 AND 2

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SPECTACLED EIDER
CRITICAL HABITAT UNITS 3 AND 4

SPECTACLED EIDER
CRITICAL HABITAT UNITS 5-7